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AUTHOR Fowler, William J., Jr.
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ABSTRACT

For the average school district, state funding is now higher than local funding, with unknown effects on per pupil spending. Previous studies in individual states do not agree on the direction and magnitude of the stimulative effect of state funding. This paper analyzes data from the 1989-90 United States Bureau of the Census report, "Public Education Finances," which provides financial information on school districts across the country. The study seeks to determine the magnitude and variation of school district spending as a result of differences in the contribution of state revenue. Findings indicate that both the southern and western regions of the United States have about the same level of state support. Once region and size were controlled, the type of school-district governance had no significant effect on expenditure per pupil. The percentage of state aid, once region and size were taken into account, explains about one-third of school-district spending per pupil. The effect of state aid has slightly negative consequences for per-pupil spending. However, no information was available on school-district wealth. Five tables and one figure are included. (LMI)

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Does School District Spending Vary by Source of Funds?

William J. Fowler, Jr.

National Center for Education Statistics
U.S. Department of Education

A paper

presented to the

American Education Finance Association

Annual Meeting in Albuquerque, New Mexico

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This paper is intended to promote the exchange of ideas among researchers and policy makers. The views are those of the author, and no official support by the U.S. Department of Education is intended or should be inferred.

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Abstract

For the average school district, state funding is now higher than local funding, with unknown effects upon per pupil spending. Previous studies in individual states do not agree on even the direction and magnitude of the stimulative effect of state funding. This paper seeks to explore an exceptionally policy-rich national school district financial data base, in order to determine the magnitude and variation of school district spending as a result of differences in the contribution of state revenue. What is sought is a better understanding of school district spending by examining the characteristics of school districts, (e.g., their size, region, fiscal status) and the degree to which they are supported by state funds.

Introduction

In 1979, a historic shift occurred when the national average States' share of the revenues for elementary and secondary education rose above local governments' share for the first time. By 1989, the state share had risen to, on average, almost 50 percent. However, this national average masks great variation state by state, and within state variation by school districts. Although some states contribute some 70 percent of a local school district's revenues (New Mexico; Washington), Nebraska contributes only 23 percent, and New Hampshire a scant 8 percent (NCES, 1992). Within New Jersey, for example, Camden's revenues are over 80 percent state-funded, while Cherry Hill's are less than 10 percent (Census, 1992).

School finance researchers generally applaud the historic shift that occurred in 1979, as higher state support is thought to assist low wealth school districts, and to narrow spending disparities. In this regard, state aid is thought of as a matching grant that will stimulate the poor school district to spend more. However, previous research studies in this area have been far less sanguine. Researchers studying single state aid systems cannot even agree on the direction and magnitude of the stimulative effect, if, indeed, there is one. Perhaps this is the result of the peripheral nature of previous inquiries, which have focused upon the efficacy of a state aid formula, or upon the existence of municipal overburden, or the tax price of education, rather than being centrally concerned with the stimulative effect of state aid. Whatever the cause, it is apparent that little work has been undertaken to understand the national scope and complexity of state aid. Undoubtedly, one contributing factor to the lack of a nationwide study has been the absence of data on all regular school districts in the nation.

This paper seeks to explore an exceptionally policy-rich national school district financial data base for school year 1989-90 that has recently become available from the U.S. Bureau of the Census, at the request and funding of the National Center for Education Statistics (NCES). This 1990 data file contains fiscal data for all school districts in the

nation. The research study at hand seeks to determine the magnitude and variation of school district spending as a result of differences in the contribution of state revenue. What is sought is a better understanding of school district spending by examining the characteristics of school districts, (e.g., their size, region, fiscal status) and the degree to which they are supported by state funds.

From a national perspective, one is struck by the great complexity in the types of school districts, the diversity in their sources of funding, and the mixture of their financial governance, which lends difficulty to empirical analyses. In addition, some regions of the country (i.e., the south) have historically provided higher percentages of state support than other regions (i.e., the northeast). As a result of this complexity, and the dearth of previous research in state aid from a national viewpoint, the current undertaking must be regarded as exploratory.

Investigating a national data base in school finance yields many unexpected findings. Perhaps the first such realization is that the highest regional average percent of state aid to regular school districts occurs, not in the South, as traditionally thought, but instead in the West, although both regions are substantially the same, and higher (on average, more than 14 percent) than either the Midwest or the Northeast (see Table 1).[1] Dependent school districts in the Northeast receive the lowest average percent of state aid of total revenues, 32.67 percent. Dependent school districts in the West, receive, on average, the highest percent of state aid, 61.97 percent. Undoubtedly this reflects the fact that 12 of the 15 dependent school districts in the West are in one state, Alaska. The symbol "CV" in Table 1 refers to the coefficient of variation, which is the standard deviation divided by the mean . The coefficient of variation standardizes the standard deviation, and permits comparable comparisons between groups. In this regard, it is interesting that the highest CV is in the Northeast, among dependent school districts. This suggests that there is wide variation in the percentage of state aid such school districts receive.

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[1] "Regular" school districts refer to a U.S. Bureau of the Census topology that excludes vocational and special education school districts, non-operating districts, higher-education districts, and educational service agencies (intermediate units). In addition, in this study, regular school districts were restricted to those with expenditures per pupil between the 5th and 95th percentile, which in 1990 was $2,595 and $8,194, respectively.

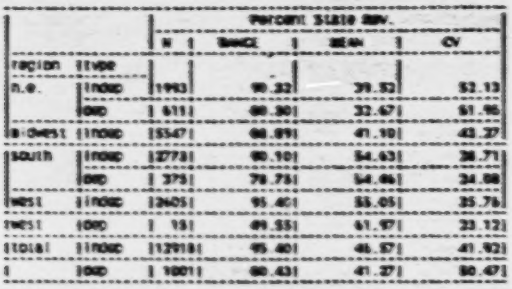

Table 1
State Aid by Region

A second surprise arises regarding the regional distribution of school districts by type of governance. The majority of school districts in the nation (almost 14,000) are self-governing, being administratively and fiscally independent. As such, they have their own appointed or elected governing board (school board), and have the authority to adopt a budget and raise local taxes. Some 1,400 school districts in the nation are dependent, that is, they rely upon a parent government (county, municipal, township, or state government) to raise local taxes. Although the dependent school board can recommend a budget and tax rate, the parent government may modify both. Table 1 demonstrates that, on average, independent school districts receive about 5 percent more in state aid than dependent school districts.

Table 2 displays the number of regular school districts in each state and region by fiscal type. The majority of states composing the northeast region have both dependent and independent school districts. Of the nine states composing the northeast region, only two states, Pennsylvania (PA) and Vermont (VT), have independent school districts without any dependent school districts. Elsewhere in the nation, only Mississippi (MS), Tennessee (TN) and Arizona (AZ) have both independent and dependent school districts. Five states have only dependent school districts. In the south, the District of Columbia (DC), Maryland (MD), North Carolina (NC) and Virginia (VA) have only dependent school districts, and in the west, only Alaska (AK) has only dependent school districts. In the remainder of the west, all states (except Alaska and Arizona), and in the midwest, all twelve states, have only independent school districts.

Excluding the District of Columbia (DC), the state with the lowest average percent state revenue is New Hampshire (NH), with 8.75 percent for its independent school districts, and the highest, New Mexico (NM), with 76.44 percent for its school districts, which are all independent.

			Percent State Rev.			
			N	RANGE	MEAN	CV
region	state	type				
n.e.	CT	indep	10	46.19	35.90	32.77
		dep	141	70.15	36.76	44.50
	MA	indep	63	80.43	41.47	37.44
n.e.	MA	dep	270	79.44	33.46	69.73
	ME	indep	79	73.31	54.79	30.66
		dep	131	77.63	65.54	31.64
n.e.	NH	indep	148	47.93	8.75	104.08
		dep	9	41.04	16.02	91.11
	NJ	indep	657	78.25	38.45	60.04
n.e.	NJ	dep	23	61.73	37.72	36.26
	NY	indep	504	67.93	53.45	29.77
		dep	4	23.91	52.73	18.54
n.e.	PA	indep	490	86.96	44.67	29.76
	RI	indep	3	46.79	37.79	66.69
		dep	33	40.77	36.08	29.39
n.e.	VT	indep	239	90.32	30.99	66.34
midwest	IA	indep	431	49.75	46.85	18.36
	IL	indep	887	73.91	40.09	48.36
midwest	IN	indep	296	90.42	53.76	18.95
	KS	indep	301	74.58	48.11	32.80
	MI	indep	533	84.98	36.77	68.11
midwest	MN	indep	429	80.51	61.78	21.57
	MO	indep	535	62.83	47.00	22.80
	ND	indep	258	44.36	42.65	17.29
midwest	NE	indep	668	83.63	20.50	41.48
	OH	indep	604	84.27	44.00	30.58
	SD	indep	180	40.25	38.83	26.34
midwest	WI	indep	421	87.65	42.83	30.79

Table 2
Percent State Aid by State

It has long been suggested that the type of school district governance influences the school district's ability to spend. Dependent school districts seem particularly vulnerable to lower expenditures and taxes as a result of the desire of a parent government to balance the costs of other government services, such as police and fire. This need to spend on non-educational governmental services has been termed "municipal overburden". Although the recent evidence regarding municipal overburden suggests that such effects do not exist (Conte, 1982; Brazer and McCarty, 1987), there still may be differences in expenditure per pupil by type of governance. For example, independent school districts may choose to spend higher amounts per pupil than parent governments would allow. Figure 1 demonstrates another surprising empirical finding from this national database: dependent school districts spend more than $500 per pupil, on average, than independent school districts. Independent school districts average $4,344 per pupil, while dependent school districts average $4,850. This finding may be related to region, as dependent school districts in the West are concentrated in Alaska, and in the Northeast.

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			Percent State Rev.			
			N	RANGE	MEAN	CV
Region	STATE	type				
south	AL	unsep	138	37.36	63.37	10.69
south	AR	unsep	305	73.42	86.75	20.17
	DC	dep	1	0.00	0.00	
	DE	unsep	16	25.39	70.99	11.79
south	FL	unsep	67	69.51	58.81	27.15
	GA	unsep	185	59.19	62.88	17.88
	KY	unsep	156	46.82	67.19	10.78
south	LA	unsep	66	39.93	59.49	14.20
	MD	dep	24	36.48	42.44	26.65
	MS	unsep	132	39.39	57.78	11.23
south	MS	dep	3	18.03	42.69	10.88
	NC	dep	139	98.98	65.52	10.62
	OK	unsep	361	69.44	57.42	22.46
south	SC	unsep	90	55.01	63.90	18.35
	TN	unsep	71	17.66	48.00	13.72
		dep	75	33.37	46.86	15.46
south	TX	unsep	1005	90.10	46.04	39.31
	VA	dep	133	57.11	50.03	24.97
	WV	unsep	55	45.42	61.73	12.67
west	AK	dep	12	49.53	65.80	18.71
	AZ	unsep	196	82.27	41.31	49.63
		dep	3	25.35	46.64	27.41
west	CA	unsep	987	83.56	61.56	26.71
	CO	unsep	168	72.60	41.21	44.19
	ID	unsep	100	53.41	59.65	17.38
west	MT	unsep	435	80.64	80.35	27.69
	NM	unsep	82	65.59	76.44	15.81
	NV	unsep	15	30.25	68.81	13.05
west	OR	unsep	281	57.07	31.72	35.75
	UT	unsep	29	56.32	48.98	33.80
	WA	unsep	271	78.28	74.02	11.98
west	WY	unsep	41	69.76	51.37	41.81

Table 2, cont.
Percent State Aid by State

What the foregoing introduction suggests is that examining state aid and its relationship to per pupil expenditure is somewhat conceptually complex. Such school district characteristics as region and fiscal governance status must be considered simultaneously with the relationship between per pupil expenditure and state aid. One final consideration regarding this relationship revolves around the issue of school district size. Although per pupil expenditure reflects a size correction for expenditure, there may be economies of scale in school district operations, which reflect an optimal size. Researchers who have previously explored this relationship (Fox, 1980) suggest a U-shaped curve, where costs are high in both the largest and smallest schools, with the optimal at the bottom of the U-shaped curve.

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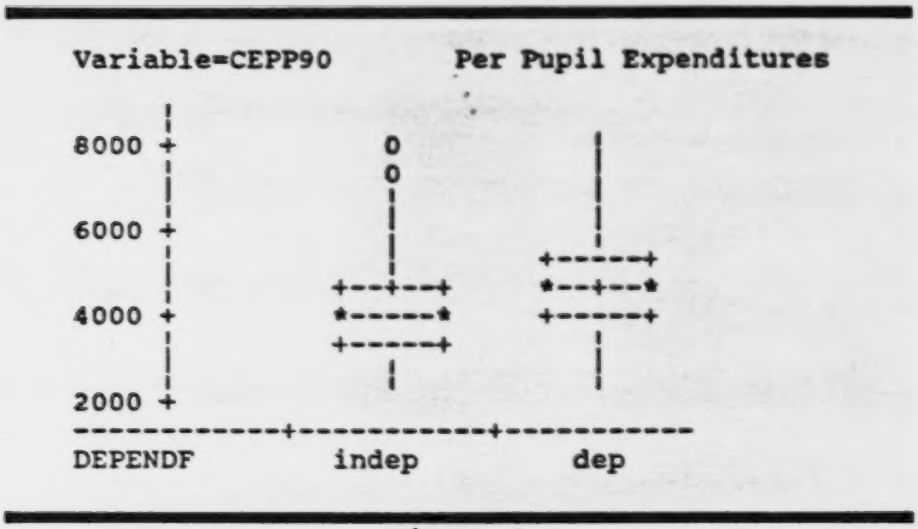

Figure 1
Comparison of Expenditures
by School District Fiscal Governance

If such size economies exist, school districts may choose to spend at a certain per pupil level, regardless of the percentage of state aid. This suggests that school district size may have an effect in addition to its use in equating expenditures by making comparable units, that is, per pupil expenditures. As a result, school district size should also be considered simultaneously with the other school district characteristics (region and fiscal governance type), when considering the influence of the percent state aid on per pupil expenditures.

Review of the Literature

In a comprehensive review of two decades of studies estimating the effect of intergovernmental grants on educational spending, prior to 1983, Tsang and Levin (1983) report on studies of exclusively educational expenditures, and those in which education expenditures are but a component of local or state expenditures. Generally, the studies show strong and significant effects on educational spending as a result of intergovernmental grants. Of 40 studies reviewed by Tsang and Levin, 13 were empirical studies on the impact of state aid on school district educational expenditures. It is useful to review some of those studies.

One of the first studies in this area was conducted by Miner (1963), using 1,127 school districts in 23 states. He used per pupil total educational expenditure to teacher salaries, state education aid as a proportion of total educational expenditure, and other independent variables. He found a negative relationship between per pupil educational expenditure and state education aid as a proportion of total educational expenditure. Tsang and Levin comment "this result is consistent with the fact that poorer districts have lower levels of educational expenditures, though they receive relatively more aid than wealthier districts" (1982, p. 347).

Using a more sophisticated analytic technique, Struyk (1970) examined how 140 New Jersey school districts responded to state aid. Using a two-stage least-squares procedure for the 1965-66 school year, he found that the school districts he studied increased their educational spending by 65 cents for every dollar in state education aid. Stern (1973) found similar results in 157 Massachusetts school districts, although local effort was reduced, total spending increased by 45 to 55 cents for every additional dollar of state education block grant. In 1974, Grubb and Michelson, using Massachusetts school districts, concluded that state education categorical grants were stimulative. Unrestricted block grants caused expenditures to rise by 21 cents for every additional state aid dollar. Feldstein (1975) and Ladd (1975) both used Massachusetts school district expenditure data, and both obtain estimates that suggest substantial effects of state matching and block grants upon educational expenditures.

Instead of examining how state aid influences expenditure per pupil, Bowman (1974) examined tax rates in Pennsylvania school districts. He discovered that Pennsylvania school districts lower their tax rates in response to additional state aid, at ratio of 50 cents on the dollar. He also suggested, but did not demonstrate, that Pennsylvania's percentage-equalizing formula grant may result in a higher educational expenditure by local school districts than those in states with foundation formulas.

Marked differences in the magnitude of the effect of state education block grants are reported by different researchers. Black, Lewis, and Link (1979) and Grubb and Osman (1977) examined the effect of state education block grants on, respectively, Delaware and

California school districts. Each found that state aid stimulated 77 to 78 cents higher per pupil spending per additional dollar received. However, Park and Carroll (1979), in a study of 451 school districts in Michigan over five years, found that school districts responded with less than half of the increase found in the Black et.al. and Grubb studies, as well as Feldstein's and Ladd's estimates for Massachusetts, suggesting that state aid does not activate increased spending at the school district level.

> The Michigan data provide no evidence that state matching grants stimulate school district expenditures enough to be a useful policy tool. We also find that state block grants exert a very small influence on the levels of school district expenditures; each dollar of grant money increases expenditures by only 6 cents per pupil on average (Park and Carroll, 1979, p. v.)

Concerned that one-year cross-sectional data are insufficient to inform researchers about school district responses to state aid, Vincent and Adams (1978) conducted both cross-sectional and longitudinal analyses of 1973 and 1975 data for Colorado, and 1972 and 1976 data for Minnesota. To their surprise, the longitudinal study found larger stimulative effects for state aid than single year analyses. In a further four state analysis (Colorado, Kansas, Maryland, Wisconsin), Adams (1979) seemed to find results that matched Park and Carroll (1979), that is, that the estimated marginal propensity for increased spending could be remarkably low (for Maryland, 7 cents on the dollar). Adams found that Wisconsin's state aid system seemed to have a more stimulative effect than Colorado, leading her to conclude that such attributes as school district size and the nature of the state formula influence the manner in which school districts' respond to state aid.

Studying school districts in New York state, Adams (1980) found a difference between the response of upstate school districts and downstate school districts. This suggests that individual school district behavior may not correspond to "average" behavior.

In studies not included in the Tsang and Levin (1983) review, Conte (1982) studied the responses of New Hampshire school districts, primarily in a test of "municipal overburden". "Municipal overburden" is the theory that in large cities, education must compete for funding with other, more essential services, such as fire and police protection. Conte found that the effect of foundation aid was not significant, and showed a negative relationship, and suggests that this may be because the amount of such aid is such a small component of total revenue (less than ten percent). He also found no evidence of municipal overburden.

Cohn (1987) examined the relationship between state aid and local revenue sources for education in South Carolina school districts for 1978, 1982, and 1985. He found that federal aid reduced local revenues by between 25 and 35 cents. State aid stimulated local revenues by different amounts in different years, although some of the aid is used in the

form of tax relief. Cohn also found that average daily membership did not influence local revenues. His results are virtually identical to Feldstein (1978).

Picus (1991) examined school district responses to incentive funding programs passed by the California state legislature. Picus examined the components of school district expenditures, with particular interest in instructional expenditures.

> School districts responded to the incentive grants by increasing the percentage of total expenditure devoted to instruction, whereas the response to general, categorical, and federal grants resulted in increases in other expenditure classifications (Picus, 1991, p. 305).

In summary, a review of the literature revolving about state aid and its influence upon expenditure per pupil presents a confusing picture about the direction and magnitude of the effect of such aid upon school district expenditures. Studies reviewed above have typically been confined to a single state, rather than involving a national analysis. In addition, the majority of the studies have been peripheral to the determination of the effect of state aid; they have either been assessments of specific state aid programs, state aid formula methodologies, or municipal overburden. The present study seeks to remedy these concerns by using a national data base to specifically examine the effects of state aid upon per pupil expenditure, controlling for region, school district governance, and school district size.

Analysis

The objectives of this paper are to conduct an exploratory analysis of the most recent data available on public school district spending, for all regular school districts in the nation for the 1989-90 school year, in order to better understand school district spending in light of differences in the percentage of total revenue provided by the state, controlling for region and parent government.

All data have been provided by the U.S. Bureau of the Census. The U.S. Bureau of the Census has released the 1989-90 "Public Education Finances" data tape, which contains revenues and expenditures for all 16,203 regular school districts in the nation. Normally, Census only conducts a universe collection quinquennially, that is, in the second and seventh year of each decade (1992; 1997), however, at the request and funding of the National Center for Education Statistics, Census conducted a universe collection for the 1989-90 school year.

Using the PC-based 6.04 version of the Statistical Analysis System (SAS), the variables of interest were subjected to exploratory data analysis (EDA). The SAS procedures (Proc Means, Proc Tabulate and Proc Univariate) for obtaining descriptive statistics and box and whisker plots were used on current expenditure per pupil (CEPP90), percent state aid (PSR90), and enrollment (V33). Tabulations and other statistics were obtained by U.S. Bureau of the Census region (REGION), state (STATE), and school district fiscal status (DEPEND). In addition, regression analyses were conducted of the relationship between percent of state revenues and the level and profile of school district spending, controlling for school district attributes, such as type of governance (dependent or independent), size, and region, using the SAS procedure REG. Financial data often is not normally distributed, and extensive exploration was undertaken with the dependent variable transformed into natural logs (LCEPP90), and with quadratic equations, using the procedure RSREG.

As might be expected with a financial data base of 16,203 regular school districts obtained from state administrative records, the initial range of expenditures per pupil ranged from $214 to $88,958, with a standard deviation of $2,473. Visual examination of the school districts with values above the 95th percentile expenditure revealed either erroneous enrollment, miscoded school district type (regular school district instead of special education school district), or improper reporting of current expenditures. The univariate procedure disclosed that the expenditure per pupil at the 95th percentile was $8,194, and at the 5th percentile, $2,595. These values are often referred to in school finance research as the restricted range (Cohn and Geske, 1990, p. 331) or the interquartile range (Garms, Guthrie, Pierce, 1978, p. 319), and are used to exclude the types of errors in a large data set that appear at the extreme ends of the distribution. All subsequent analyses reported below were conducted on the cases within the restricted range, which included 13,919 school

districts. The restricted range had a mean expenditure per pupil of $4381, and a standard deviation of $1,192.

Results

The results of the ordinary least squares analysis appear in Table 3. The dependent variable is current expenditure per pupil (CEPP90), and the independent variables are percent state aid (PSR90), and enrollment (V33) [both continuous], and dummy variables for region (REGION), and school district fiscal status (DEPEND). The dummy variable for region included the northeast, midwest, and south (excludes the west) and the dummy variable for governance included fiscally dependent school systems (excluded independent).

The equation explains 31.57 percent of the variance in per pupil expenditure. The percent of state aid is significant and negative. The size of school district is also significant, and positive. Region is significant, reflecting that different regions have different levels of spending per pupil. The type of governance is not significant.

Dependent Variable Cepp90 Per Pupil Expenditures

Variable	Coefficient	S.E.	T	Prob.
Intercept	5379.36	31.85	168.85	.0000
PSR90	-16.96	.45	-36.96	.0001
V33	.002	.0006	3.80	.0001
DREGION1	779.34	29.39	26.51	.0001
DREGION2	-499.45	24.26	-20.58	.0001
DREGION3	-733.90	26.37	-27.82	.0001
DDEPEND2	-45.63	34.71	-1.31	.1887
R-Square	.3157			
F-Value	1070.146			

Table 3
OLS Linear Regression

A subsequent regression with the dependent variable transformed into a natural logarithm explained 31.74 percent of the variance in the log of per pupil expenditure per pupil. The natural log is also useful, in that it demonstrates the elasticity between a dollar expenditure and a one percent change in state aid. The logarithmic regression demonstrates that state aid is only slightly negative. For every ten percent increase in state aid, the log of expenditure per pupil declines by 3.5 cents. See Table 4.

Dependent Variable LCEPP90 Log of Per Pupil Expenditure

Variable	Coefficient	S.E.	T	Prob.
Intercept	8.56	.0068	1242.73	.0000
PSR90	-0.0035	.000099	-36.21	.0001
V33	.00000062	.00000015	4.29	.0001
DREGION1	.15	.0063	24.81	.0001
DREGION2	-.1083	.0052	-20.63	.0001
DREGION3	-.177	.0057	-31.07	.0001
DDEPEND2	.00092	.0075	0.123	.9019
R-Square	.3174			
F-Value	1078.507			

Table 4
Log-Linear Regression

A quadratic equation slightly improves the prediction of expenditure per pupil. See Table 5. The quadratic explains 34.11 percent of the variance in per pupil spending. The prediction is enhanced by the crossproduct of region and percent state aid, and region and type of school district governance.

Dependent Variable CEPP90 Per Pupil Expenditure

Variable	Coefficient	S.E.	T	Prob.
Intercept	5921.83	73.5041	80.56	.0000
PSR90	-45.93	2.42	-18.92	.0000
V33	-.0137	.005075	-2.703	.0069
DREGION1	445.32	77.26	5.76	.0000
DREGION2	-643.65	68.41	-9.408	.0000
DREGION3	-112.89	86.61	-1.303	.1925
DDEPEND2	1539.88	279.096	5.517	.0000
PSR90*PSR90	.3081	.022	13.814	.0000
V33*PSR90	.00022	.000071	3.067	.0022
V33*V33	.057	.036	-1.57	.1164
DREGION1*PSR90	10.22	1.51	6.74	.0000
DREGION1*V33	.010094	.0034	2.92	.0033
DREGION2*PSR90	4.109	1.3096	3.13	.0017
DREGION2*V33	.01053	.0027	3.78	.0002
DREGION3*PSR90	-11.48	1.504	-7.63	.0000
DREGION3*V33	.0051	.0027	1.83	.0672
DDEPEND2*PSR90	3.073	1.93	1.58	.1125
DDEPEND2*V33	.0032	.0029	1.097	.2725
DDEPEND2*DREGION1	-2029.027	260.9014	-7.77	.0000
DDEPEND2*DREGION3	-1321.65	256.98	-5.143	.0000

Regression	R-Square	F-Ratio	Prob.
Linear	0.3157	1110.3	.0000
Quadratic	0.0050	52.73	.0000
Crossproduct	0.2004	39.039	.0000
Total Regress.	0.3411	378.8	.0000

Table 5
Quadratic Regression

Conclusions

Exploration of a national data base of regular school districts has led to a number of insights not normally afforded by analyzing either the school districts in a single state, or a selected subset of states. Although most school finance researchers believe that state aid for school districts has traditionally been a greater percentage of total revenue in the south, it is clear that both the south and the west have about the same level of state support, and that this level of support is, on average, more than ten percent higher in the south and west than in the northeast and midwest.

The distribution of school districts by governance type has not been widely known. Only ten states have both independent and dependent school districts: seven in the Northeast (CT, MA, ME, NH, NJ, NY, RI); and two in the South (MS, TN) and one in the West (AZ). Five states have only dependent school districts: four in the South (DC, MD, NC, VA), and one in the West (AK). Nationwide, less than ten percent of the regular school districts in the nation are dependent: 13,988 independent school districts, and 1,118 dependent school districts.

Part of the interest in the governance of school districts has been the presumption that the type of governance influences school district spending. However, the results of this study suggest that once region and size have been controlled, type of school district governance is not significant in determining expenditure per pupil. This finding calls for more intensive study. School finance researchers have long believed that the type of school district governance has profound effects upon the school district's ability to spend. The finding here, together with the most recent work on "municipal overburden" suggests that school finance theorists must revisit the conceptual underpinning of school district behavior.

Even if not statistically significant, the direction of spending by school district governance type also is puzzling. Nothing in the current literature addresses even the presumption that dependent school districts would outspend independent school districts. Several interesting hypotheses suggest themselves, however. Dependent school districts are frequently urban school districts, and the increased spending may reflect some combination of student need and higher costs that attend urban areas. Perhaps the tendency of independent school districts to require voter approval of budgets and tax rates provides limits upon their spending. Perhaps the elected nature of independent school districts' school boards causes them to be reluctant to spend. Whatever the causes, the descriptive finding that dependent school districts spend more per pupil than independent school districts, and the multivariate finding that school district governance is not influential in determining spending per pupil require major theoretical adjustments by the school finance community.

The percent of state aid, once region and school size are taken into account, explains about a third of school district spending per pupil. The effect of the percent of state aid is ever so slightly negative, with very small consequences for per pupil spending. At the time

of this analysis, no measure was available to indicate the relative wealth of school districts. Later this year, the median income of all school districts in the data base should be able to be obtained from the U.S. Bureau of the Census decennial census. It may be that higher percentages of state aid are flowing to poorer school districts, which are still unable to raise their expenditures to the level of wealthy school districts. The addition of a measure of wealth to each school district should also improve the prediction of school district spending.

The decennial census data will also enrich our understanding of school district spending by adding other attributes of school districts to our data set. The number of children in AFDC and at-risk will also be mapped to school districts. These measures will allow school finance researchers to assess the level of student need at the school district level, and they will be able to answer the simple question of whether school districts with higher levels of student need spend more per pupil than other, less needy school districts.

The National Center for Education Statistics (NCES) is also developing a measure of school district urbanicity, termed locale code. It may be that the dependent/independent governance measure is too gross, and that it needs to be combined with a locale measure, in order to better understand school district spending. Perhaps only suburban dependent school districts, such as Fairfax County, Virginia, are high spending, while urban dependent school districts, such as Baltimore and the District of Columbia, are unable to spend at the level of suburban dependent school districts.

As an exploratory effort on a data file that has only become available in the last year, this research study has been quite rewarding. It has become apparent that any national study of school district spending must consider both regional and school district size effects. On the other hand, the results obtained here suggest that school district governance type is not of concern when predicting school district spending. Next steps include understanding why these empirical results are obtained.

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Note

This article is intended to promote the exchange of ideas among researchers and policymakers. The views are those of the author, and no official support by the U.S. Department of Education is intended or should be inferred.

Author

WILLIAM J. FOWLER, JR., National Center for Education Statistics, U.S. Department of Education, 555 New Jersey Avenue, N.W., Washington, D.C. 20208-5651. Phone (202) 219-1921. FAX (202) 219-1728. Specializations: school finance and educational productivity.